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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,628	04/28/2000	Julian A. Fells	537-1016	3607

7590

08/27/2003

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EXAMINER

LEE, JOHN D

ART UNIT PAPER NUMBER

2874

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/560,628

Applicant(s)

FELLS ET AL.

Examiner

John D. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 11, 13-16, 18, 20, 21, 23-25, 27 and 29 is/are rejected.
- 7) ☒ Claim(s) 2-10, 12, 17, 19, 22, 24, 26, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Applicant's communication submitted on June 9, 2003, has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejections based upon prior art made of record in the previous Office action are withdrawn. The previously applied objection to claim 24 as being improperly multiply dependent and the previously applied 35 U.S.C. § 112 rejection of claims 22, 23, 34, and 35 have also been obviated and are likewise withdrawn. In view of further search, however, and the consequent discovery of relevant prior art documents, a new rejection is set forth below. This action is **not** made final.

The six (6) sheets of formal drawing submitted on June 9, 2003, are acceptable.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 21, 24/1, and 25 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by U.S. Patent 6,498,669 to Payne et al. Payne et al discloses an optical

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communications network including a two-part optical dispersion compensation system for compensating both linear and non-linear dispersion in optical fibers. The non-linear dispersion compensation unit comprises dispersion compensating waveguide (fiber) portions having tailored dispersion characteristics, while the linear dispersion compensation unit comprises chirped fiber gratings. The linear and non-linear dispersion compensation units are coupled together.

Claims 11, 13-16, 18, 20, 23, 27, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,498,669 to Payne et al. As noted above, the linear dispersion compensation unit of Payne et al comprises chirped fiber gratings, but the gratings are not disclosed as being Bragg gratings. Since specific wavelength selectivity would be vitally important in a communications system like that of Payne et al, the person of ordinary skill in the art would have found it obvious to ensure that the chirped fiber gratings of the reference are linearly chirped fiber Bragg gratings, each introducing a degree of constant dispersion for compensation purposes. As shown and described in Figure 7 of Payne et al, an optical circulator can be used to couple the various parts of the dispersion compensation system of the reference. Using this concept more generally than is shown, it would have been obvious to a person of ordinary skill to have coupled the linear and non-linear dispersion compensation units via two ports of an optical circulator. Moreover, even though a three-port circulator is shown in Figure 7 of Payne et al, the use of a four-port circulator would have been obvious, wherein the four ports are connected to the linear dispersion compensation unit, the non-linear dispersion compensation unit, the optical input, and the optical

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output. It is believed obvious that the chirped gratings in Payne et al could be either transmissive or reflective type gratings. As noted above, the non-linear dispersion compensation unit of Payne et al comprises dispersion compensating waveguide (fiber) portions, but no mention is made of the mode(s) in which these portions are designed to operate. This would have been an obvious consideration, however, so that the choice to operate in a "higher order" mode would involve only ordinary skill in the art.

Claims 2-10, 12, 17, 19, 22, 24/2, 24/3, 24/4, 26, 28, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Payne et al does not disclose or suggest that the non-linear dispersion compensation unit can or should comprise chirped Bragg gratings. Payne et al also does not disclose or suggest that the non-linear dispersion compensation unit can or should comprise an array of dispersion compensation paths, each having a different dispersion slope, along with an optical device for selecting/switching to one of the paths. Payne et al likewise does not disclose or suggest that the linear dispersion compensation unit can or should comprise an array of chirped Bragg gratings, each having a different degree of linear dispersion, along with an optical device for selecting/switching to one of the chirped Bragg gratings. Payne et al further does not disclose or suggest that the dispersion compensating waveguide (fiber) portions can be made of photonic crystal materials. Finally, Payne et al does not disclose or suggest that the non-linear dispersion compensation unit applies dispersion *slope* compensation

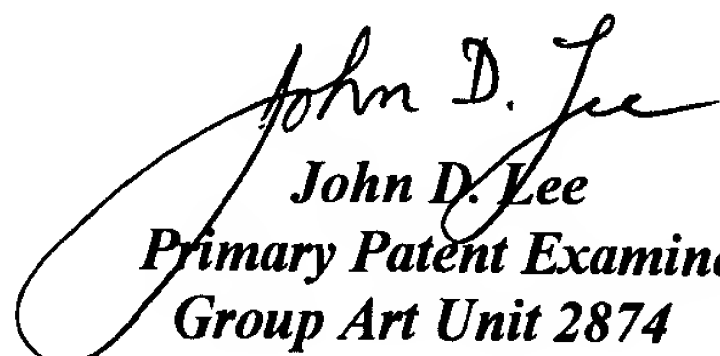
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across the signal band while the linear dispersion compensation unit applies a degree of linear compensation to effect linear dispersion compensation across the signal band.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication 2003/0063884 A1 to Smith et al describes an optical communications system including means for compensating both linear and non-linear dispersion terms (see paragraph [0029]).

All of the prior art documents submitted by applicant in the Information Disclosure Statement received on June 12, 2003, have been considered and made of record (note the attached initialed copy of form PTO-1449).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (703) 308-4886. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956, to the technical support staff supervisor (Team 2) at telephone number (703) 308-3072, or to the Technology Center 2800 Customer Service Office at telephone number (703) 306-3329.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874